

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. **(Original)** A method for forming a glass body, the method comprising:
 - providing a glass aggregate;
 - mixing the glass aggregate with a liquid to form a slurry;
 - casting the slurry in a mold to form a porous pre-form, the mold including a porous glass substrate; and
 - consolidating the porous pre-form into the glass body.
2. **(Original)** The method of claim 1, wherein the step of providing the glass aggregate includes forming soot particles as a by-product of a flame hydrolysis process.
3. **(Original)** The method of claim 1, wherein the step of providing glass aggregate further comprises:
 - forming soot particles as a by-product of a flame hydrolysis process;
 - providing a coarse glass powder having the same composition as the soot particles, the coarse glass powder including glass particles that are, on average, larger than the soot particles; and
 - mixing the soot particles and the coarse glass powder.
4. **(Original)** The method of claim 1, further comprising the step of cleaning the porous pre-form to remove impurities.
5. **(Original)** The method of claim 4, wherein the porous pre-form is cleaned by applying a liquid or a gas while the pre-form is in the mold.
6. **(Currently Amended)** The method of claim 4, wherein the step of cleaning further comprises:
 - disposing the porous pre-form in a high temperature chlorine gas atmosphere, the high temperature being lower than a sintering temperature of the porous pre-form; and

4

treating the porous pre-form by allowing the chlorine gas to react with the impurities in the porous pre-form for a pre-determined time.

7. **(Currently Amended)** The method of claim 56, wherein the high temperature is between 700°C and 1100°C.

8. **(Original)** The method of claim 1, wherein the liquid includes ammonia hydroxide.

9. **(Currently Amended)** The method of claim 1, wherein further comprising the step of drying is performed by heating the porous pre-form to approximately 1000°C.

10. **(Canceled)**

11. **(Original)** The method of claim 1, wherein the step of casting includes pressure casting the slurry.

12. **(Original)** The method of claim 11, wherein the step of pressure casting the slurry further comprises:

disposing the slurry in a mold apparatus, the mold apparatus including a mold and a water collection chamber;

adding a desiccant to the slurry; and

applying a vacuum to the slurry, the vacuum and desiccant acting in concert to transfer water from the mold to the water collection chamber.

13. **(Original)** The method of claim 1, wherein the step of consolidating includes heating the porous pre-form to a temperature of 1600°C.

14. **(Original)** The method of claim 13, wherein the step of consolidating includes heating the porous pre-form to a temperature of 1600°C for approximately ten minutes.

15. **(Currently Amended)** The method of claim 19, wherein the step of heating includes sintering the porous pre-form.

16. **(Original)** The method of claim 15, wherein the step of sintering the porous pre-form is performed at a temperature above 1000°C.

17. **(Original)** The method of claim 15, wherein the porous pre-form is sintered at a temperature of approximately 1400°C.

18. **(Original)** The method of claim 15, wherein the porous pre-form is sintered at a temperature of approximately 1500°C.

19. **(Original)** The method of claim 15, wherein the porous pre-form is sintered at a temperature of approximately 1650°C.

20. **(Currently Amended)** The method of claim 15, wherein the step of sintering further comprises:

disposing the porous pre-form in a high temperature chlorine gas atmosphere, the high temperature being lower than a sintering temperature of the porous pre-form; and

treating the porous pre-form by allowing the chlorine gas to react with ~~the~~ impurities in the porous pre-form for a pre-determined time.

21. **(Original)** The method of claim 15, wherein the step of sintering is performed in a substantial vacuum.

22. **(Original)** The method of claim 15, wherein the step of sintering is performed in a helium atmosphere.

23. **(Original)** The method of claim 1, wherein the glass substrate is of the same composition as the glass aggregate.

24. **(Currently Amended)** The method of claim 1, wherein the glass aggregate includes glass soot, glass cullet, and glass pieces larger than the glass cullet.

6

25. **(Original)** The method of claim 1, wherein the step of casting is performed using a slip casting technique.

26. **(Original)** The method of claim 1, wherein the step of casting is performed using a vacuum casting technique.

27. **(Original)** The method of claim 1, wherein the step of casting is performed using a gel casting technique.

28. **(Canceled)**

29. **(Canceled)**

30. **(Original)** A method for forming a glass body, the method comprising:
 providing glass particles, the particles including relatively fine glass soot particles mixed with relatively coarse glass particles;
 mixing the glass particles with a liquid to form a slurry;
 providing a mold having a porous glass substrate;
 pressure casting the slurry in the mold to form a porous pre-form; and
 consolidating the porous pre-form to form a glass object.

31. **(Currently Amended)** The method of claim 30, wherein the mold is formed from glass soot particles as a by-product of a flame hydrolysis process, the glass soot particles being collected in a containment vessel to form a body, the body being partially sintered to form at least a portion of the mold.

32. **(Currently Amended)** A method for forming a glass body, the method comprising:
 providing a glass aggregate;
 mixing the glass aggregate with a liquid to form a slurry;
 pressure casting the slurry in a mold to form a porous pre-form;
 disposing the porous pre-form in a chlorine gas atmosphere heated to a predetermined temperature, the chlorine gas reacting with the impurities in the porous preform for a pre-

7

determined time, whereby the impurities are vaporized and carried out of the porous pre-form; and

consolidating the porous pre-form to form a glass object.

33. **(Original)** The method of claim 32, wherein the step of consolidating includes heating the porous pre-form.

34. **(Original)** The method of claim 33, wherein heating the porous pre-form includes sintering the porous pre-form.

35. **(Currently Amended)** The method of claim 32, wherein the predetermined temperature is lower than a sintering temperature of the porous pre-form.

36. **(Currently Amended)** A method for forming a glass body, the method comprising:
providing a glass particles, the particles including relatively fine glass soot particles mixed with relatively coarse glass particles;
mixing the glass particles with a liquid to form a slurry;
pressure casting the slurry in a mold to form a porous pre-form;
disposing the porous pre-form in a chlorine gas atmosphere heated to a predetermined temperature, the chlorine gas reacting with the impurities in the porous pre-form for a predetermined time, whereby the impurities are vaporized and carried out of the porous pre-form; and
consolidating the porous pre-form to form a glass object.

37. **(Original)** The method of claim 36, wherein the step of consolidating includes heating the porous pre-form.

38. **(Original)** The method of claim 37, wherein heating the porous pre-form includes sintering the porous pre-form.

39. **(Currently Amended)** The method of claim 36, wherein the predetermined temperature is lower than a sintering temperature of the porous pre-form.

40. **(Original)** A method for forming a glass body, the method comprising:
- providing a glass aggregate;
 - mixing the glass aggregate with a liquid to form a slurry;
 - casting the slurry in a mold to form a porous pre-form, the mold including a porous glass substrate having the same composition as the glass aggregate; and
 - consolidating the porous pre-form into the glass body.
41. **(Currently Amended)** A method for forming a glass body, the method comprising:
- forming soot particles as a by-product of a flame hydrolysis process;
 - mixing the soot particles with a coarse glass cullet liquid to form an aggregate slurry;
 - mixing the aggregate with a liquid to form a slurry;
 - disposing coarse glass cullet in a mold;
 - vacuum casting the slurry in a mold to form a porous pre-form, the mold including a porous glass substrate; and
 - consolidating the porous pre-form into the glass body.